Centre No.						Paper Reference							Surname	Initial(s)
Candidate No.						1	3	8	0	/	3	H	Signature	

Paper Reference(s)

1380/3H

Examiner's use only

Team Leader's use only

O Level

Mathematics (Linear) – 1380

Paper 3 (Non-Calculator)

Transformation of Curves

Past Paper Questions

Arranged by Topic

Materials required for examination

Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.
Tracing paper may be used.

Items included with question papers

Nil

Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer ALL the questions. Write your answers in the spaces provided in this question paper.
You must NOT write on the formulae page.
Anything you write on the formulae page will gain NO credit.
If you need more space to complete your answer to any question, use additional answer sheets.

Information for Candidates

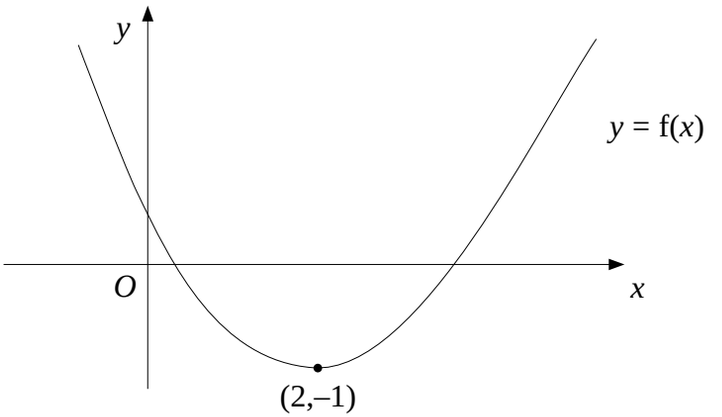
The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
There are 26 questions in this question paper. The total mark for this paper is 100.
There are 24 pages in this question paper. Any blank pages are indicated.
Calculators must not be used.

Advice to Candidates

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.

Leave blank

1.



The diagram shows part of the curve with equation $y = f(x)$
The minimum point of the curve is at (2,–1)

(a) Write down the coordinates of the minimum point of the curve with equation

(i) $y = f(x + 2)$

.....

(ii) $y = 3f(x)$

.....

(iii) $y = f(2x)$

.....

(3)

The curve $y = f(x)$ is reflected in the y axis.

(b) Find the equation of the curve following this transformation.

$y =$ .....

(1)

The curve with equation $y = f(x)$ has been transformed to give the curve with equation $y = f(x) + 2$

(c) Describe the transformation.

.....

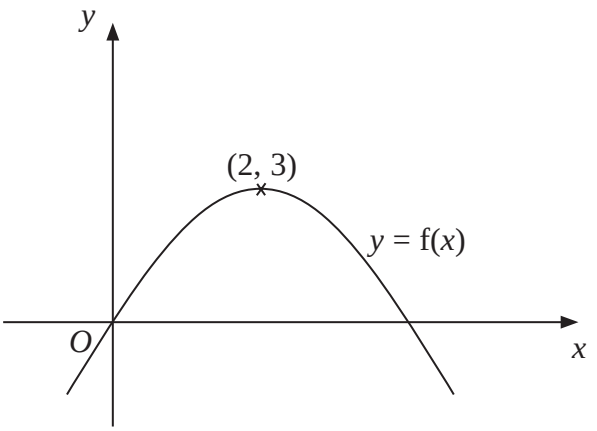
(1)

Q1

(Total 5 marks)

Leave blank

2.



The diagram shows part of the curve with equation $y = f(x)$.
The coordinates of the maximum point of this curve are (2, 3).

Write down the coordinates of the maximum point of the curve with equation

(a) $y = f(x - 2)$

(..... , ...)
(1)

(b) $y = 2f(x)$

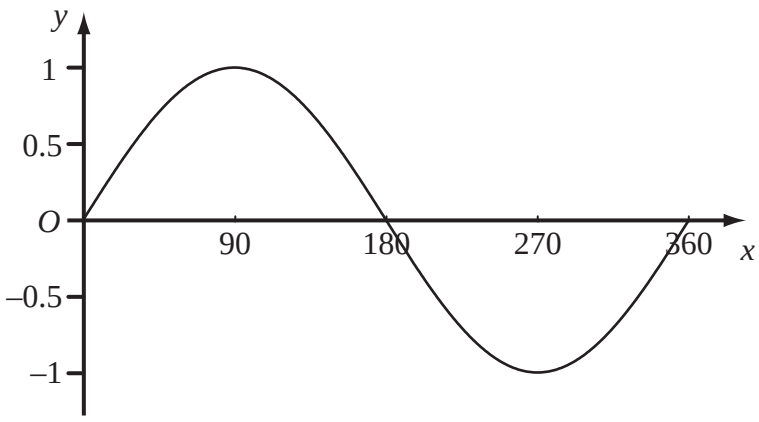
(..... , ...)
(1)

Q2

(Total 2 marks)

Leave blank

3. The diagram shows a sketch of the curve $y = \sin x°$ for $0 \leqslant x \leqslant 360$



The exact value of $\sin 60° = \frac{\sqrt{3}}{2}$

(a) Write down the exact value of

(i) $\sin 120°$,

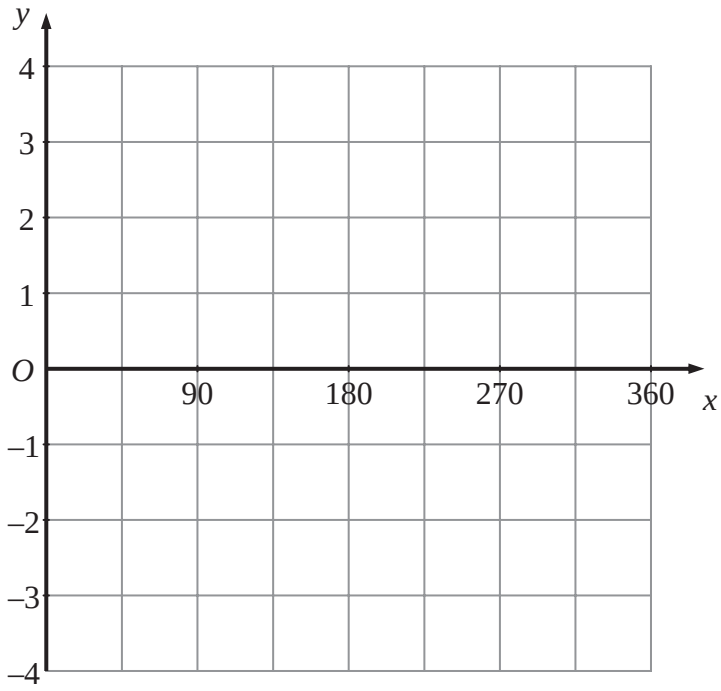
.....

(ii) $\sin 240°$.

.....

(2)

(b) On the grid below, sketch the graph of $y = 4\sin 2x°$ for $0 \leqslant x \leqslant 360$



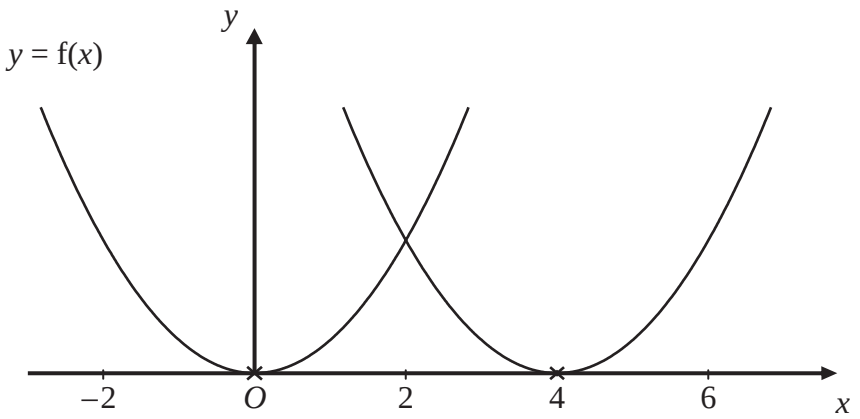
(2)

(Total 4 marks)

Q3

Leave blank

4.

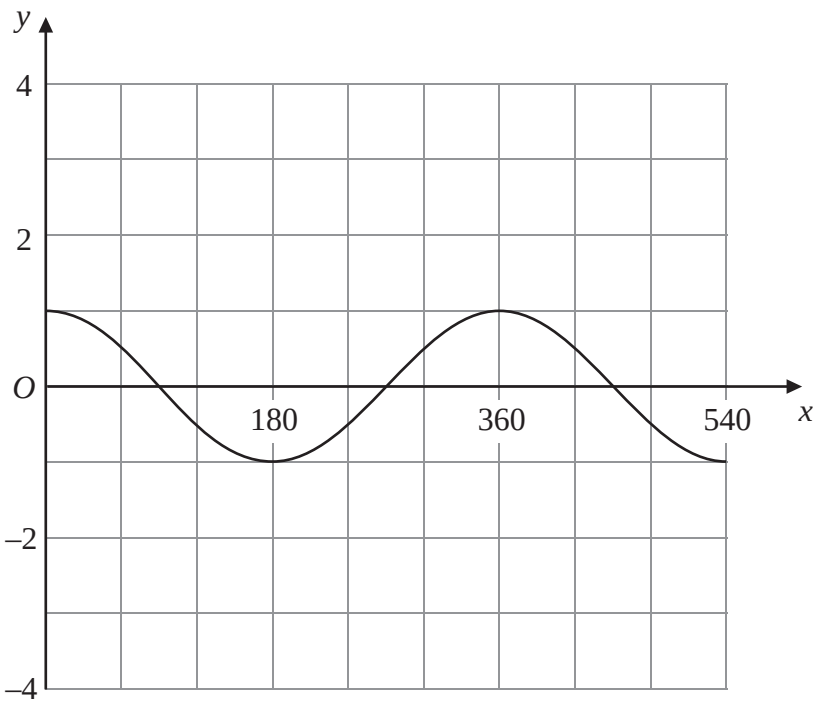


The curve with equation $y = f(x)$ is translated so that the point at (0, 0) is mapped onto the point (4, 0).

(a) Find an equation of the translated curve.

.....

(2)



The grid shows the graph of $y = \cos x°$ for values of x from 0 to 540

(b) On the grid, sketch the graph of $y = 3\cos(2x°)$ for values of x from 0 to 540

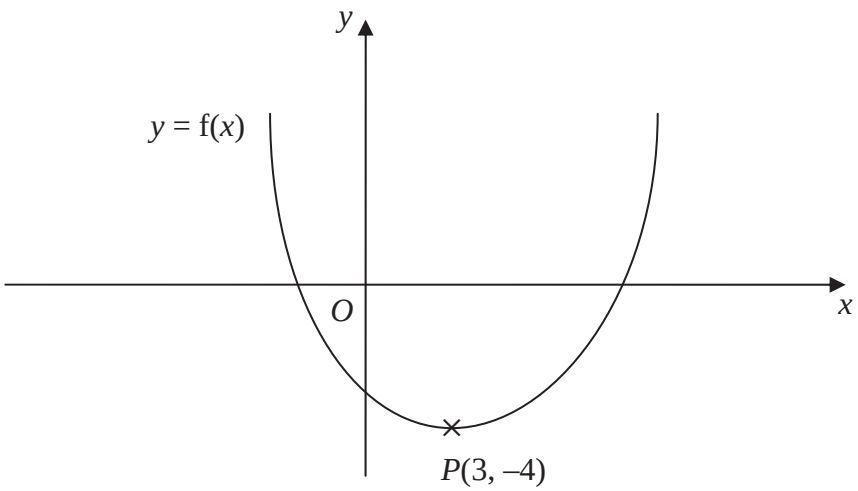
(2)

Q4

(Total 4 marks)

Leave blank

5. This is a sketch of the curve with the equation $y = f(x)$.
The only minimum point of the curve is at $P(3, -4)$.



(a) Write down the coordinates of the minimum point of the curve with the equation $y = f(x - 2)$

(..... , ...)
(2)

(b) Write down the coordinates of the minimum point of the curve with the equation $y = f(x + 5) + 6$

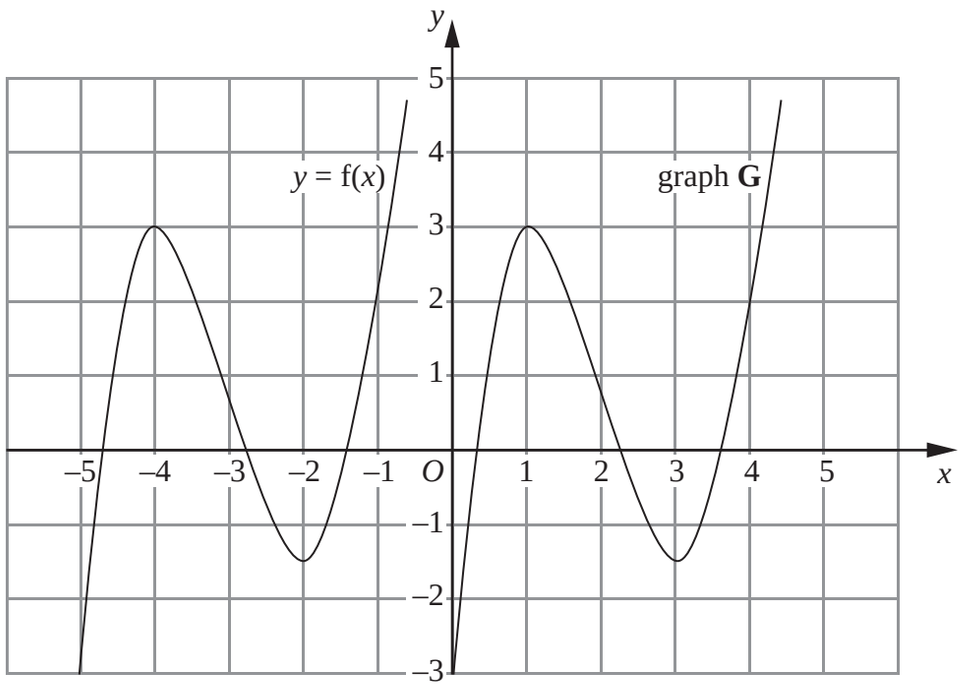
(..... , ...)
(2)

Q5

(Total 4 marks)

Leave blank

6. The graph of $y = f(x)$ is shown on the grid.



The graph **G** is a translation of the graph of $y = f(x)$.

(a) Write down, in terms of f, the equation of graph **G**.

$y =$ .....

(1)

The graph of $y = f(x)$ has a maximum point at $(-4, 3)$.

(b) Write down the coordinates of the maximum point of the graph of $y = f(-x)$.

(..... , ...)

(2)

Q6

(Total 3 marks)

TOTAL FOR PAPER: 22 MARKS

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